explains the occurrence of spontaneous closure where the outflow of urine through the urethra is maintained.

In 1850, A. J. Jobert de Lamballe[1] advocated broad denudation of the edges of the fistula, and their exact approximation by interrupted sutures. When the fistula was large, and the approximation difficult on account of the tension, he made incisions in the lateral vaginal walls parallel to the edges of the fistula so as to permit the tissues to be drawn together (*par glissement*).

Later, the methods of Marion,[2] Sims[2] and Simon[3] were employed.

Sims denuded the margins of the fistula in a funnel-shaped form down to but not including the vesical mucosa, and then sutured the edges with silver wire.

Simon, in addition to suturing the opening, used tension sutures at a distance from the wound, instead of the incisions employed by Jobert.

Since these methods were described, many modifications have been suggested by different operators. I find, however, that my advocacy of a free separation of the bladder has been anticipated by some of the German gynaecologists. Although its importance has not yet been urged in English books or papers, I was unaware of the existence of their work when I practised this operation for the first time in 1895, and only discovered it on searching through the literature of the subject, previous to writing an account of the operation performed in the following case.

S. R., aged 44, was sent to the Samaritan Hospital for Women on October 26th, 1901, suffering from a vesico-vaginal fistula.

Previous History.—She had had one child twenty years previously; labour natural. Six years later she began to suffer from "falling of the womb." This condition existed for four years before treatment by pessaries was commenced. An operation (perineorraphy) which was performed later only gave relief for a month and recourse was had to further treatment by pessaries. For two years she wore a Zwanck pessary which was removed every three months and replaced after being cleaned. She consulted Dr. Cashin, of Southsea, five months before admission into the Samaritan Hospital, and on removing the Zwanck pessary he discovered a vesico-vaginal fistula, the orifice of which was partially blocked by one segment of the pessary. The fistula had thus existed for five months before her admission.

State on Examination.—She was a spare woman, somewhat anaemic in appearance. All the urine was passed per vaginam mixed with a considerable quantity of purulent discharge. Blood was occasionally mixed with the urine. The urine collected by catheter from the bladder showed a copious deposit of pus. Before operating I decided to attempt to improve the condition of the bladder and vagina. For this purpose frequent douches of warm boracic lotion were employed and urotropine 5 gr. three times daily given by the mouth. The result of this treatment was a marked improvement in the local condition, and on November 6th, 1901, the operation for closing the fistula was undertaken.

Description of the Operation.—The patient being placed in the lithotomy position with the pelvis raised, the cervix was drawn down with a vulsellum. This exposed the opening of the fistula, which was situated high in the anterior fornix at the point of junction of the anterior aspect of the cervix and the vaginal wall. The orifice admitted the thumb with ease, and the bladder mucous membrane was extroverted through it. I intended to do the operation I had done in former cases, namely, free separation of the bladder and suture of the opening; but as the cervix was broad, I thought it would be best to take a U-shaped flap from the front of the cervix, turn it over the opening, and stitch it in position. The operation was carried out in the following manner:—The anterior vaginal wall being put on the stretch, an incision was made in the middle line from close to the urethral orifice to the margin of the fistulous opening. This incision was prolonged around the fistula (see Fig. 1, p. 1204). The vaginal wall was then carefully separated from the bladder, and the two flaps thus formed held aside (as in Fig. 2). A small U-shaped flap was taken from the anterior surface of the cervix. This was separated up as in doing the operation of vaginal hysterectomy, in order to allow it to be stitched to the opening without any tension on the stitches. Whilst the flaps were being made a piece of absorbent wool was inserted into the bladder through the fistula to stop the flow of urine. The flap was stitched accurately to the margins of the fistula with chromic catgut sutures inserted after Lembert's method. A curved needle was used to insert the sutures. The opening having been closed, the vaginal flaps were stitched together in the middle line whilst their lower margins were stitched to the margins of the raw surface on the cervix (see Fig. 3). Chromic catgut was also used for these sutures. A gauze pack was inserted into the vagina, and the patient returned to bed.

After-History.—The catheter was passed every four hours for forty-eight hours. After this period the patient passed urine naturally, and has done so ever since. Urotropine was given three times daily for three weeks after the operation in order to get rid of all traces of cystitis. When the urine became free from pus the urotropine was discontinued. There was no leakage from the vagina at any time after the operation. The vaginal wound healed well.

Although I have used fine silk with which to stitch the bladder in my former cases I find chromic catgut properly sterilized so much better that I have now abandoned the former. It is important that one or two additional stitches should be inserted at each end of the line of sutures in order to minimize the risk of leakage.

Another objection to paring the edges of the fistula is the occurrence of intravesical haemorrhage. Two examples of this accident are recorded, one by Kelly[4] and another by Becker.[5] In cases associated with the formation of much scar tissue it is better to dissect it away as it heals badly, and marginal flaps made to close the opening on the principle adopted in cleft palate operations.

I may add that I have adopted this method of free separation of the bladder in the treatment of uretero-vaginal fistula, thus bringing the separated bladder towards the fixed end of the ureter, and implanting the latter into a new opening made in the bladder.

A word, in conclusion, may be said regarding the advisability of using a self-retaining catheter after operation. When such a catheter is used there is always an additional risk of cystitis; and, moreover, a certain amount of paralysis of the bladder results. It is best to use a catheter at regular intervals until the patient can pass urine naturally.

REFERENCES.

1 *Comptes Rend. de l'Acad. des Sci.* and *Traité des Fistules*, Paris, 1852. 2 On the Treatment of Vesico-Vaginal Fistula, *Amer. Jour. of Med. Sci.*, 1852, vol. xxiii, p. 59. 3 *Ueber die Heilung der Blasenscheidenfistul*, Giessen, 1854. 4 *Operative Gynecology*, vol. i, p. 340. 5 *Cent. f. Gyn.*, 1893, No. 38.

BIBLIOGRAPHY.

Milton, *St. Thomas's Hospital Reports*, New Series, vol. xvii, 1887. Dudley, *Chicago Medical Journal and Examiner*, May, 1886. McGill, *Lancet*, November 8th, 1890, p. 967. Freund, *Samm. klin. Vort.*, No. 118, 1895. Kelly, *Johns Hopkins Hospital Bulletin*, February, 1896. Mackenrodt, *Cent. f. Gyn.*, 1894, No. 8. A. Martin, *Zeit. f. Geb. und Gyn.*, No. 19, p. 394. Stanmore Bishop, *Lancet*, June 19th, 1897.

A CASE OF PREMATURE SENILITY OF THE UTERUS.

BY AUGUSTUS W. ADDINSELL, M.B., M.R.C.P.,
Assistant Physician, London Temperance Hospital.

A. B., aged 26, consulted me in 1894 for sterility.

Her history was that she had been married a year, and from the date of marriage had never menstruated. She was a well-developed woman; the breasts were fully formed and nipples prominent. The vulva and external genitals were normal; pubic hair abundant. She commenced to menstruate at 12½ years, was always regular every 28 days, had never missed a period up to marriage; it lasted 4 to 5 days, was occasionally somewhat copious, but never painful.

Vaginal examination revealed a perfectly normal state as far as one could determine; the ovaries were both easily felt; the uterus was freely movable. The cervix appeared healthy, and of normal length and size. The sound passed 2½ in. There was no discharge, either vaginal or uterine. It transpired that the honeymoon had been spent in Switzerland, and that within a fortnight of marriage she had sustained a great shock from what she feared might be a fatal accident to her husband. This occurred about the time that the period was expected. Since then she had never menstruated. I told her I had nothing to suggest beyond a visit to Schwalbach, which was undertaken for two consecutive years. In 1896 there was a slight show for one day only, but with that exception she has not had a period from the day she married, now nearly seven years ago.

I saw her again in July, 1901, after six years of amenorrhoea. She looked in good health; was strong and active, walked and played golf; she complained of heats and flushes at intervals, very irregular, but about every two months or ten weeks. Both ovaries were still apparently healthy, but no cervix could be felt, merely a dimple in the vaginal roof. Bimanually no uterus could be made out, but the sound passed just under 1 in. Sexual feeling was retained, and occasionally the breasts became tense and tender.

This case is unique in my experience. It cannot be described as superinvolution, for the uterus was never enlarged beyond the normal, and so had no chance of involuting. As far as one can see, it is directly due to nervous shock at the time menstruation was due. I have seen many cases where menstruation has apparently been suddenly arrested, sometimes with unpleasant sequelae, which have persisted for a long time.

There is now under my care at the hospital a woman, aged only 22, who, whilst menstruating, witnessed a tragedy of a woman's throat being cut and the victim falling dead at her feet; menstruation was arrested, and the next morning the whole of the hair of the pubes on the right side was pure white, while that of the left remained dark. All the pigment of the right labium majus has disappeared, and the inner side of the right thigh is bleached. In this case menstruation did not take place for nine months, but it is now quite normal; the absence of pigment, however, persists.

Other curious phenomena, the result of shock during

menstruation, I hope to record in the future; but the case, which for want of better explanation, I regard as premature senility, seems to merit a separate description.

One point is interesting. We used to be taught that menstruation and ovulation were necessarily coincident, and, indeed, interdependent. This view is now discarded. Heape of Cambridge, in his interesting study of menstruation in monkeys, has done much to destroy its vitality. In my patient ovulation apparently continues, though menstruation has ceased.

Dr. Percy Boulton, in the BRITISH MEDICAL JOURNAL, vol. ii, 1872, mentions two cases of atrophy of uterus after pregnancy; and refers to Dr. Whitehead's case, which was supposed to be a case of absence of uterus following pregnancy. Mr. Lawson Tait, however, thought that Dr. Whitehead had in reality punctured the fundus uteri, "that the sound was free in the peritoneal cavity."

We are all familiar with cases in which amenorrhoea has followed upon a great shock; in all instances that have come under my notice, recovery has taken place in some months, generally without any local treatment; but I am not aware of any recorded case of permanent amenorrhoea and complete atrophy following directly upon a nervous shock.

It is obviously impossible to prove positively that ovulation persisted here; to prove it to demonstration, it would be necessary that the woman should have become pregnant, or that an ovum should have been discovered in the uterus or Fallopian tube; but it would appear from the occasional swelling of the breasts and general sense of pelvic discomfort that ovulation was still going on. Cases are well known in which, with congenital absence of uterus or infantile uterus, there has been dysmenorrhoea severe enough to necessitate oöphorectomy, which has cured the pain. There are enough instances in which pregnancy has occurred before menstruation to show that ovulation and menstruation are certainly not synchronous, and not necessarily coincident. Again, though amenorrhoea generally accompanies lactation, yet plenty of cases are on record of fertilization taking place during the amenorrhoea of lactation—a clear proof that ovulation continues.

No one, I suppose, doubts the very close and intimate connexion between these two phenomena; but the general tendency of modern views is towards the belief that they are under separate influences, having independent cycles. Happening in many cases, however, to fall together, it presents the appearance of consequent coincidence. The late Mr. Lawson Tait in 28 coeliotomies found in 3 only indications of a ripe follicle. To those not particularly interested, and to the casual observer, when a blood-stained swelling is seen on the ovary it is at once assumed that it is a corpus luteum, or, at any rate, a ripe follicle; but this is not necessarily so, for a careful microscopical examination has revealed in many instances the fact that they are atrophied follicles; and in regard to the recent discussion at the Obstetrical Society on ovarian pregnancy, it is of primary importance that these should all be most carefully examined.

In the Obstetrical Society's *Transactions*, 1898, vol. xl, page 165, Mr. Heape of Cambridge deals with the question of ovulation and menstruation in monkeys. He finds that the Macacus rhesus, though menstruating regularly, yet only breeds at certain seasons (about October). Again, in Queensland certain native women, whilst menstruating regularly, only breed at certain seasons; and I believe there is evidence to show that even in civilized countries certain women, though menstruating regularly, only have a portion of the year in which they become fertilized.

In operating on 42 monkeys (Semnopithecus entellus), all menstruating, he found no corpus luteum. In 22 Macacus rhesus, 14 menstruating, 8 not, he found no sign in either ovary. In 17 rhesus he found during menstruation signs of a corpus luteum in 3 only, and of these 3 only 1 recent.

At Olympia, when Barnum and Bailey's hippodrome was here three years ago, I studied the menstruation of the famous chimpanzee Johannah—she menstruated every fourth Wednesday for three months that I watched her. During the six years the keeper had been with her he told me she only showed signs of suffering the approach of a male ape during the months of September and October, though she menstruated with the utmost regularity.

In three operations of abdominal hysterectomy on menstruating females of Macacus sinicus there was no indication of any ripe follicle in either ovary to the naked eye, though I carefully looked for them.

I have recorded this case, because it is at least unusual, and if, as I believe to be the case, though I cannot bring absolute proof, ovulation has continued after menstruation has ceased, then it may be regarded as a pebble thrown upon the heap of evidence in favour of the view that ovulation and menstruation are not coincident.

CASE OF INVERSION OF THE UTERUS.

BY CECIL GRANTLEY HOYSTED, L.R.C.P.,
L.R.C.S.EDIN., L.S.A.LOND.
Swanley.

FOLLOWING the cases reported in the BRITISH MEDICAL JOURNAL (November 9th, 1901, p. 1408, and December 28th, p. 1865), and occurring at a period when the midwives question is occupying our minds very seriously, and moreover, in a district which has recently been brought into notoriety by a correspondence in the JOURNAL which has had bearing on the midwives question, the following case may present some interest.

An urgent message was sent to me on December 21st, 1901, in the words of the midwife in attendance, "to be as quick as possible; a bad case; something had gone wrong."

On arrival at the house I found the patient, a multipara, aged 33, in a state of collapse, the case being one of complete inversion of the uterus. The midwife stated that she was pressing hard on the abdomen to "push out the afterbirth," adding at the same time "she didn't pull the cord a bit," in a manner which led one to suspect that her conscience pricked her, "when it all came out."

Condition on Examination.—The woman was blanched, cold, clammy, and almost pulseless; the respirations were shallow and sighing, and she had that anxious ashy grey appearance which so often heralds death. There was a large swelling, the size of a very large cocoanut, protruding from the vulva, having at first sight the appearance of an enormous placenta. The first impression was that a large fibroid had been expelled with the placenta adherent, but on abdominal palpation no fundus uteri could be felt in the hypogastrium thus enabling one to form the diagnosis of complete inversion of the uterus.

The treatment of the case was commenced by quickly "peeling" the placenta from the fundus. The separation took place easily, but was followed by profuse haemorrhage from several points. This was controlled by pouring hot water on the inverted fundus, and by compressing it with towels dipped in hot water. The woman's condition being so bad I attempted reduction immediately, but, the operation causing her such intense pain, I administered chloroform to her, laying the piece of lint over her face with the anaesthetic on it while I went on with the reduction. The inverted mass was hard, with an irregular smooth surface; its upper part, however, felt quite regular and smooth, and was obviously due to partial inversion of the vagina. A finger passed between the inverted cervix and the vagina felt the remainder of the vagina as a tense, smooth mucous membrane. On attempting to reduce the mass by gentle pressure on the fundus upwards it became hard and contracted; so, in spite of the collapsed condition of the patient I pushed the anaesthetic a little more and the hardness of the fundus decreased. Then, inserting the fingers of the left hand into the uninverted part of the vagina, the dorsal aspect of the hand being towards the sacrum, I was able by gentle pressure upwards and forwards in the direction of the anterior abdominal wall, at the same time steadying the inverted mass with the right hand, also slightly compressing it so as to diminish its size with the right hand, to "tuck" in a fold of its posterior surface through the cervix. On the fold becoming bigger and deeper I exerted a little more pressure on the fundus, always keeping the direction of the general pressure exerted upwards and forwards, and the mass gradually disappeared through the vulva. Then, continuing to press the fundus upwards with the left hand and compressing it with the right through the anterior abdominal wall, the whole slipped through my hands, the feeling being that of an india-rubber ball after being turned inside out "righting" itself.

On abdominal palpation, the fundus uteri was felt in the hypogastrium, and contraction took place almost immediately, after this there was little or no haemorrhage. I then administered a hypodermic injection of ergotin with strychnine, and turned my attention to the general condition of the woman. She was in a truly desperate state, the pulse could hardly be felt, and she was apparently almost lifeless. Hot blankets, hot bottles, etc., were applied, friction to the extremities, and a large injection of hot saline solution into the rectum was made, about four pints in all being injected, about ʒij. of brandy was added to the solution. Almost immediately the pulse improved, was a little fuller in volume, but the collapse continued, however, with perseverance in the use of the restorative methods during the next few hours, the condition of the patient improved.

From that time the progress of the case was slow but satisfactory, the lochia during the first few days were a little offensive, and a little elevation of temperature occurred, but on irrigation of the uterine cavity with a douche of hot water and tincture of iodine, the temperature at once abated and the lochia became normal. A mixture of liq. ferri perchloridi and potassium chlorate, administered three-hourly, gave an excellent result in reducing the anaemia and pyrexia and improving the general condition of the patient.